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CENTRAL INTELLIGENCE AGENCY

**INFORMATION REPORT**

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1. The USSR is waging a vigorous campaign to bring its construction equipment capabilities in line with its ambitious program of power plant, dam, and canal building. As a result, bulldozers, excavators, scrapers, tractors, canal diggers, and dredges are appearing in growing numbers at a score of major, high-priority projects. On the other hand, the pick and shovel and the rope bucket-hoist still predominate at thousands of smaller, little-publicized jobs whose completion is, in sum, equally vital to the USSR's economy.
2. Soviet mechanization of construction is an integral part of the Fifth Five Year Plan (1951-1955) which has as a major objective the lowering of building costs "not less than 20 per cent." Evidence that the cost-cutting and mechanization drives are lagging can be found almost daily inside the same Soviet newspapers whose front pages are devoted to extravagant claims of new accomplishments. For example, the official Communist newspaper Pravda declared recently: "Construction costs have remained high. Builders often lag behind workers in industry with regard to decreasing production expense. There are many shortcomings in the organization of construction work. Mechanization opportunities are used unsatisfactorily; labor productivity is low; uneconomic use of materials is permitted; and overhead expenses are extremely great. As a result construction costs have not been lowered at all at a number of construction projects." Idleness of construction machinery due to breakdown, a shortage of spare parts, and poor job scheduling is a major problem throughout the USSR.

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3. The great bulk of the USSR's newest and best earth-moving equipment has been concentrated at the so-called "great construction works of Communism." These include the 63-mile-long Volga-Don Shipping Canal completed in 1952; the two million kilowatt Kuibyshev hydroelectric plant (largest in the world) located on the middle Volga River; the 1,700,000 kilowatt Stalingrad hydroelectric plant on the lower Volga; the 380-mile-long gravity-flow canal from the Volga to the Ural River which is designed to irrigate nearly 20 million acres; and the 683-mile-long Main Turkmen Canal from the Amu Darya River to the Caspian Sea which is 10 times the combined length of the Panama and Suez Canals and will bring water to millions of acres of barren Central Asian desert land.
4. None of these are mere drawing board projects. The Kuibyshev hydro plant is scheduled for completion in 1955 and the Stalingrad plant during the next (Sixth) Five Year Plan. Work is well under way on the Volga-Ural and Main Turkmen canals. The Tsimlyanskaya dam and power plant on the Don River were completed in 1952, and the Ust-Kamenogorsk dam and power plant on Siberia's Irtysh River were dedicated last summer.
5. Although not ranking with the Kuibyshev project in power production, the Tsimlyanskaya dam is impressive. Reportedly raised in a single year, the dam is nearly eight miles long and over 130 feet high. It required 33,200,000 cubic meters of earth fill.
6. The Volga-Ural Canal, besides being six times as long as the Volga-Don Canal, will also be deeper--a maximum of 65 feet. The builders will excavate 250 million cubic meters of earth and put 70 million cubic meters of earth into the built-up banks lining the canal. Finishing the canal banks and leveling the earth will involve another 100 million cubic meters of earth work. Thus the total volume of earth work on the Volga-Ural Canal will exceed 400 million cubic meters (14 billion 120 million cubic feet) as compared with 56,500,000 cubic meters (two billion cubic feet) on the Volga-Don Canal. In addition to the 380-mile-long main canal, there will be 1,250 miles of irrigation canals in the Volga-Ural project which is to be finished in 1957.
7. Included among the equipment working on the large hydro canal and dam projects are the following:
  - A. The experimental D-264 scraper-excavator. The D-264 which is designed primarily for digging navigable and irrigation canals up to 43 feet deep weighs 76 tons, moves on balloon tires, and is towed by three Type 3-80 caterpillar tractors. Built by the Osipenko Construction and Road Machinery plant, it has a six-man crew and a rated earth-moving capacity of 1,500 to 1,800 cubic meters per hour. On one side the D-264 has two tractors towing a three-meter-wide steel plow which shaves off layers of earth up to 20 centimeters (about eight inches) in thickness. The dirt then moves back into a conveyor which in turn transfers it to a 147-foot-long bridge conveyor. The bridge conveyor permits dumping the load far to one side of the plow. The unloading end of the bridge conveyor is towed by the third tractor.

The D-264 is especially adapted for use on the flat, treeless steppes in the southern part of the USSR. It is being tested on the Volga-Ural canal project. According to the Soviets, the D-264, despite its clumsy appearance, is easily maneuverable and can work on ground with considerable slope. They assert that the D-264 can do the work of Uralets excavators of three cubic meters capacity working with 100 automatic dump trucks.

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- B. The EM-502 multi-bucket excavator. This, according to Soviet articles, is "an original machine of high efficiency, designed for digging canals." The Soviets claim that the EM-502 "in a single day can scoop out a channel nearly two miles long, over eight feet deep and more than 18 feet wide at the surface."
- C. The 1,200-ton ESH-14/65 walking excavator. This machine, used on the Volga-Don Canal, is said to have a bucket capacity of 14 cubic meters, a 65-cubic-long (over 213 feet) jib and 48 electric motors. It has a crew of from five to 16 men and has a daily earth-moving capacity of 12 to 14 thousand cubic meters.
- D. The ESH-14/75 walking excavator. This is a development of the ESH-14/65. It has the same capacity bucket but a longer, 75-meter jib, more power, improved efficiency, and greater maneuverability.
- E. The ESH-20/65 walking excavator. This machine has a 65-meter jib and the largest bucket capacity of any Russian excavator--20 cubic meters. The ESH-20/65 reportedly can move up to 15 thousand cubic meters of rock and dirt in 24 hours.
- F. The new and improved 1000-80 suction dredge. Soviet statistics state that it has a productivity of 1,500 cubic meters an hour and a water column pressure of 80 meters. Diameter of its suction pipe is 950 mm, and it reaches down 25 meters below the water surface.
- G. The MAZ-525 truck. This is the Soviets largest tip-up truck. It has a capacity of 25 tons. It is 327 inches long and 126.5 inches wide.
8. Much of this equipment is not in mass production in the US sense. The USSR has shown considerable ingenuity in developing new machines, but even comparatively simple equipment such as tractors often require several years between introduction of an advanced experimental model and quantity production. Meanwhile, the Soviet heavy machinery plants work under heavy pressure for increased production. Under the current Five Year Plan, production of excavators in 1955 is slated to be 2.5 times the 1950 level; scraper and bulldozer output is scheduled to increase three- to four-fold, and mobile cranes four- to five-fold.

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